

USSR

UDC 624.072.04

GOL'DSHTEYN, Yu. B. (Petrozavodsk), and SHUL'KIN, Yu. B. (Leningrad)

"A Geometrical Analysis of Methods for Calculating Statically Indeterminate Rod Systems"

Moscow, Stroitel'naya Mekhanika i Raschet Sooruzheniy, No 1, 1971, pp 34-38

Abstract: On the basis of a mixed representation of a vector in Euclidian space in terms of its covariant and contravariant components, an analysis is made of calculation methods (of courses, shifts, mixed) of statistically indeterminant rod systems, and their similarity and differences are established. 3 figures, 4 bibliographic items.

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USSR

UDC 634.0.812.719

SHTEYNERS, K. N., GOLDSHTEYNS, A. Ya., ROTSENS, K. A., DOLATSI, Ya. A.,  
and RAYAVEYE, E. L., Institute of Wood Chemistry, Academy of Sciences  
Latvian SSR

"Deformation Characteristics of Birch Wood, Modified Chemically by Radiation,  
as a Function of Polymer Content"

Riga, Izvestiya Akademii Latviyskoy SSR, No 11(304), 1972, pp 35-41

Abstract: The basic components of the pliability tensor of polystyrene which has been modified chemically by radiation as a function of its concentration in birch wood were determined. The module of elasticity and the module of shear were also measured for three groups of samples: a control group, a group exposed to an integrated radiation dose of 14 mrads, and a group containing the chemically modified polystyrene. The components of interest were  $a_{1111}$ ,  $a_{2222}$ ,  $a_{1212}$ ,  $a_{1313}$ , and  $a_{2323}$ . The mathematical form of these is also given. The components  $a_{2222}$  and  $a_{2323}$  showed a greater dependence (a second order function) on the polystyrene concentration than the other three components, which had a first order dependence.

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GOL'DSHTIK, M. A., SAPOZHNIKOV, V. A., SHTERN, V. N., Novosibirsk

"Testing of the Malkus Hypothesis of Stability of Turbulent Flows"

Moscow, Mekhanika Zhidosti i Gaza, No 5, Sep-Oct 70, pp 172-176

Abstract: Numerical calculations indicate that even if the requirements of Malkus are fulfilled, they do not allow unambiguous determination of the experimental profile. The numerical analysis performed in this article leads to the following conclusions: a) the critical Reynolds number for velocity profiles similar to the experimental profiles is over an order of magnitude higher than the Reynolds number for which these profiles are realized; b) the critical Reynolds number grows in proportion to the Reynolds number of the flow; c) among the neutral stable profiles, profiles can be found which correspond to arbitrarily high energy dissipation; d) neutral, stable profiles with fixed dissipation of energy can have arbitrary form outside the viscous sublayer and transient layer. Thus, the principal hypotheses of Malkus concerning boundary stability of an averaged turbulent flow to infinitely small perturbations are not confirmed. Stability of 1/2

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GOLDSHTIK, M. A., et al, Mekhanika Zhidosti i Gaza, No 5, Sep-Oct 70, pp 172-176

averaged turbulent fields to finite perturbations is, however, an experimental fact. If at the initial moment in time, the energy distribution function is disturbed with respect to frequencies of turbulent pulsations, equilibrium distribution of energy and the profile of average velocity is restored rather rapidly in the flow. Consequently, the averaged turbulent fields do not have the property of neutral stability. The calculations in this article indicate deep stability of averaged velocity fields even without consideration of the stabilizing influence of Reynolds stresses, related to their direct interaction with the perturbations. While they contradict the hypotheses of Malkus, the results produced do not close the path to phenomenological description of turbulence on the basis of the stability properties. Indicating the deep stability of turbulent fields, they indirectly speak in favor of the principle of the maximal stability, developed in other works.

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1/2 027 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--LOCAL PROPERTIES OF THE PROBLEM OF HYDRODYNAMIC STABILITY -U-

AUTHOR--(03)--GOLDUSHTIK, M.A., SAPOZHNIKOV, V.A., SHTERN, V.N.

COUNTRY OF INFO--USSR

SOURCE--PMTF, ZHURNAL PRIKLADNOI MEKHANIKI I TEKHNIЧЕСKOI FIZIKI,  
MAR.-APR. 1970, P. 56-61  
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--REYNOLDS NUMBER, HYDRODYNAMIC PROPERTY, FLOW STABILITY,  
PERTURBATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3005/1399

STEP NO--UR/0207/70/000/000/0056/0061

CIRC ACCESSION NO--AP0133351

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0133351

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FORMULATION OF LOCALIZABILITY PROPERTIES FOR SHORT WAVE PERTURBATIONS IN THE PROBLEM OF HYDRODYNAMIC STABILITY. THESE PROPERTIES CAN BE USED TO STUDY NOT ONLY THE GLOBAL STABILITY OF A FLOW BUT ALSO THE STABILITY OF INDIVIDUAL PARTS OF THE FLOW, FOR EXAMPLE, THE FLOW CORE OR THE WALL ZONE. THE LOCALIZABILITY PROPERTIES ARE ILLUSTRATED IN THE CASE OF THE SMALL PERTURBATION SPECTRUM OF A PLANE POISEUILLE FLOW AND OF FLOWS OBTAINED BY DEFORMATION OF A SMALL SECTION OF THE POISEUILLE PARABOLA. IT IS SHOWN THAT THE OCCURRENCE OF POINTS OF INFLECTION IN SUCH DEFORMATION LEADS TO THE APPEARANCE OF GROWING PERTURBATIONS WITH A WAVELENGTH OF THE ORDER OF THE DEFORMATION ZONE. IT IS ALSO SHOWN THAT DISCONTINUITY POINTS IN THE VELOCITY PROFILE LEAD TO A LOSS OF STABILITY AT FAIRLY LARGE REYNOLDS NUMBERS.

UNCLASSIFIED

USSR

UDC 621.396.67:624.971

SOKOLOV, A. Ye., D'YACHKOV, V. K., GOL'DYAYEV, K. Ya., BALANDIN, V. V.

"A Device for Limiting the Angle of Turn of an Antenna Mast "

USSR Author's Certificate No 255375, Filed 19 Jun 68, Published 8 Apr 70 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10B94 P)

Translation: The proposed device for limiting the angle of turn of an antenna mast contains shock absorbers and a stopper mechanism made in the form of a threaded ring which is fitted on the faces with teeth which mesh at the extreme positions of the column with teeth on the support rings. To simplify the design and reduce the overall dimensions of the device, the threaded ring is rigidly fastened inside a yoke which is fixed by hinge fastening to the stationary base of the antenna mast through the shock absorbers. Two illustrations.

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USSR

UDC 005.513.5:025.135(088.8)(47)

GOLDYREV, V. I., KARELIN, B. V., TYUTIKOV, L. S., Scientific Research Institute of Control Computers and Systems

"A Device for Retrieving Edge-Punched Cards"

USSR Author's Certificate No 318969, Division G, filed 9 Mar 70, published 24 Jan 72 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 72, abstract No 11B344P)

Translation: A device is proposed which contains a base, a vibration platform, a punchcard magazine with support strips, and selector racks which are kinematically coupled to the keyboard levers of the code set-up mechanism. In order to increase speed, the device contains double-arm levers with the selector rack fastened on one arm, while the other arm is connected to the keyboard lever of the code set-up mechanism. Four illustrations.

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Computers: Digital

USSR

DOC: 005.013.5:025.135

~~GOLDYREV, V. I.~~, KARELIN, B. V., TYUTIKOV, L. S., Scientific Research  
Institute of Control Computers and Systems

"A Device for Retrieval of Edge-Punched Cards"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,  
No 32, Nov 71, Author's Certificate No 318969, Division G, filed 9 Mar 70,  
published 28 Oct 71

Translation: This Author's Certificate introduces a device for retrieval  
of edge-punched cards. The unit consists of a base, a vibration platform,  
a punchcard magazine with support fingers, and selector racks which are  
kinematically coupled to the key levers of a code setup mechanism. As a  
distinguishing feature of the patent, the speed of the device is increased  
by using two-armed levers with a selector rack coupled to one arm and a  
key lever of the code setup mechanism connected to the other.

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1/2 017 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--OPTIMIZATION OF THE DEHYDRATION OF PYROMELLITIC ACID TO ITS  
ANHYDRIDE -U-  
AUTHOR--(04)--MAZITOV, M.F., GOLECHEK, A.A., PORTNOV, YU.T., KHANNANOV, T.M.  
COUNTRY OF INFO--USSR  
SOURCE--ZAVOD. LAB. 1970, 36(5), 580-2  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--DEHYDRATION, PYROMELLITIC ACID, ANHYDRIDE, THERMAL EFFECT,  
PRESSURE, CHEMICAL PURITY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3004/1971 STEP NO--UR/0032/70/036/005/0580/0582  
CIRC ACCESSION NO--AP0132232  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132232

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STATISTICALLY PLANNED SET OF 20 EXPTS. WAS CARRIED OUT WITH TEMP. (200 PLUS OR MINUS 30DEGREES), PRESSURE (510 PLUS OR MINUS 150 MM), AND TIME (4 PLUS OR MINUS 1.5 HR) AS INDEPENDENT VARIABLES, AND YIELD AND PURITY OF PYROMELLITIC DIANHYDRIDE AS THE RESPONSES. TWO REGRESSION SERIES WERE OBTAINED. FACILITY: NAUCH.-ISSLED. INST. NEFTEKHIM. PROIZVOD., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 538.4

MKHITARYAN, A. M., BOYARSKIY, G. N., UDARTSEV, YE. P., GOLEGO, A. N.

"Study of an Electromagnetic Jet Along a Wall"

Sb. nauch. tr. Kiev. in-t inzh. grazhd. aviatsii (Collection of Scientific Works. Kiev Institute of Civilian Aviation Engineers), 1970, No. 6, pp 92-98 (from RZh-Mekhanika, No 9, Sep 71, Abstract No 9B44)

Translation: The electrohydrodynamic control of flow in a boundary layer on a plane nonconducting plate is investigated experimentally with the aid of corona discharge between the corona electrode and the system of electrode-collectors located on the surface. The effect of the frequency  $f$  of the controlling electric field and electrode switching diagrams on the dynamic flow characteristics at different cross sections of the boundary layer is studied. The considerable increase in the rate in the region of the wall of propagation of the electrohydrodynamic jet is demonstrated. It is shown that the rise in  $f$  leads to an increase in the maximum "evoked" velocity and to a more uniform distribution of it along the section of interaction with the electric field. There is established the possibility of regulating the flow by changing the distribution of potential

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USSR

MKHITARYAN, A. M., et al, Sb. nauch. tr. Kiev. in-t inzh. grazhd. aviatsii, 1970, No. 6, pp 92-98

on the electrode-collectors. It is found that the relative increment of the pulse in the boundary layer ceases to rise with an increase in the electrogas-dynamic Euler number, beginning with a certain value. A. B. Vatazhin.

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USSR

UDC 621.01:539

KOVALEV, V. V., GOLEGO, N. L., TRUSKOV, P. F., Kiev Institute of Civil Aviation Engineering

"Influence of Degree of Hardening and Roughness of Friction Surfaces on Wear Rate and Load-bearing Ability"

Kiev, Fiziko-khimicheskaya Mekhanika Materialov, Vol 8, No 3, 1972, pp 21-26.

Abstract: This work presents a study of the changes in wear rate, coefficient of friction and friction surface temperature as functions of micro-hardness and roughness of the friction surfaces at various temperatures of the lubricant supply and various normal pressures. The softer metal of the friction couple, when it does not reach full hardening, wears rapidly with increased normal pressure, and its wear rate may be higher than the same material in the hardened state by 2 or 3 orders of magnitude. During the initial period of friction, the wear rate is decisively influenced not so much by the height of microprojections on the friction surfaces as by their mutual placement on the two surfaces. The temperature of the lubricant layer has a decisive influence on processes of friction and wear, both during the break-in period and after it. An increase in the temperature of the lubricant layer

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KOVALEV, V. V. GOLEGO, N. L., TRUSKOV, P. F., Kiev, Fiziko-khimicheskaya Mekhanika Materialov, Vol 8, No 3, 1972, pp 21-26.

cant layer above the values causing its local breakdown results in an increase in wear rate, roughness, coefficient of friction and in a decrease in microhardness. The end of the break-in period can be considered to have arrived when a condition of sufficiently complete contact and equality of dimensions of projections and depressions on the profiles of the microirregularities of the two friction surfaces is reached, which occurs as the normal pressure is increased from its average values to the critical values for each given friction speed. When these conditions are met, the load-bearing ability of friction surfaces increases. This means that if the critical values of normal pressure and contacting surface temperature for a given pair of materials is reached during the break-in process, changes in these parameters between the minimum values and the critical values at the same friction speed or less cannot later cause disruption of the normal friction and wear process in the friction couple.

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USSR

UDC: 629.78.002

GOLEGO, N. L., SHELEST, B. P.

"On the Part Played by Solid Lubricant Coatings in the Formation of Processes Accompanying Contact Vibration Displacements in a Vacuum"

Sb. nauch. tr. Kiyev. in-t inzh. grazhd. aviatsii (Collected Scientific Works of the Kiev Institute of Civil Aviation Engineers), 1970, vyp. 3, pp 39-43 (from RZh-Raketostroyeniye, No 7, Jul 71, Abstract No 7.41.226)

Translation: The paper deals with problems in the use of solid lubricant coatings containing molybdenum disulfide,  $WS_2$ ,  $WSe_2$ ,  $WTe_2$ , graphite and other materials with a laminar structure for reducing friction and cutting down the damage to contacting surfaces when parts operate in a vacuum. In addition to materials with a laminar structure, polymer materials -- polyfluoroethylene, textolite, polyethylene, polyamides, etc. -- are used as solid lubricants. The comparatively low sliding rates and the resultant low friction temperature of polymer coatings mean that these materials can be used for reducing friction and cutting down the damage to contacting surfaces operating in a deep vacuum in the presence of vibration displace-

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GOLEGO, N. L., SHELEST, B. P., Sb. nauch. tr. Kiyev. in-t inzh. grazhd. aviatsii, 1970, vyp. 3, pp 39-43

ments. This research was devoted to the investigation of damageability of friction surfaces, covered with solid laminar and polymer materials under conditions of contact vibration displacement. Polyfluorethylene coatings were chosen for studying the effect of polymer coatings on friction processes accompanying vibration displacements in a vacuum. These coatings were tested with a displacement of 500  $\mu$  and a frequency of 60 Hz in a vacuum of  $10^{-5}$  mm Hg in the pressure range of 10-150 kg/cm<sup>2</sup>. The studies showed that when polyfluorethylene coatings are used on the contacting specimens, a thin, easily sliding protective layer is formed from the coating material, which prevents accidental sticking, destruction or change of the structure of the coating or the contacting surface of steel specimens. In the study of a molybdenum disulfide coating, it was found that this coating ensures optimum characteristics of the processes in the surface layers of the materials without seizing or destruction under vacuum and vibration displacement conditions throughout the entire pressure range. The microhardness of a molybdenum disulfide layer does not change after testing, and is in the range  $H_p = 170-190$  kg/cm<sup>2</sup>. Thus the described coatings can provide excellent working capacity of machine elements under deep vacuum conditions. Two illustrations, one table, bibliography of eight titles. T. A. Ye.

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USSR

UDC: 539.622

GOLEGO, N.N. and KUL'GAVYY, E.A.

"Installation for Investigation of Friction and Wear of Materials in Low-Temperature Liquids"

Sb. nauch. tr. Kiev. in-t inzh. grazhd. aviatsii (Symposium of Scientific Works of Kiev Institute of Civil Aviation Engineers) 1971, vyp 2, pp 73-75 (from Referativnyy Zhurnal-Aviatsionnyye i Raketnyye Dvigateli, No 7, 1972, Abstract No 7.34.165)

Translation: The installation proposed for investigation of processes of friction and wear of materials in cryogenic liquids, including liquid hydrogen ( $20^{\circ}\text{K}$ ), is described. The proposed installation may be also used for testing materials in various liquid mediums in the temperature range from 650 to  $20^{\circ}\text{K}$  (1 illustration, resume).

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USSR

UDC 621.383:546.19'68'

PTASHCHENKO, A.A., PRESNOV, V.A., KRUGLOV, I.I., GOLEMEIYEVSKIY, N.N.,  
OVCHINNIKOVA, A.P.

"Excess Currents And Aging Of Light-Emitting Diodes Based On GaAs"

Elektron. tekhnika. Nauch.-tekhn. sb. Poluprovodn. pribory (Electronic Technica. Scientific-Technical Collection. Semiconductor Devices), 1971, Issue 7(64), pp 16-20 (from RZh:Elektronika i yeye primeneniye, No 4, April 1972, Abstract No 4B347)

Translation: The aging was studied of GaAs light-emitting diodes with zinc as the acceptor. Both conventional and anomalous aging was observed. It is shown that the excess currents responsible for aging consist of volume and surface components and have a tunnel-thermal nature and are connected with nonuniformities of the p-n junctions. 5 ill. 5 ref. Summary.

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VENIKOV, G. V. and GOLEMBO, B. Z.

"Some Problems of Selection of the Structure of Hardware and Software for Automatic Control Systems"

Tekhn. Kibernetika. T. 5 (Itogi Nauki i Tekhn. VINITI AN SSSR) [Engineering Cybernetics. Vol 5 (Results of Science and Technology, All-Union Institute for Scientific and Technical Information, Academy of Sciences USSR) -- Collection of Works], Moscow, 1973, pp 449-474 (Translated from Referativnyy Zhurnal Mekhanika, No 9, 1973, Abstract No 9V722).

Translation: The basic requirements are formulated for hardware for prospective automatic control systems: characteristics of the structure of an ACS hardware complex are presented; the structures of information storage and prospects for their development; problems of ACS software are discussed and some criteria for their optimal effectiveness are presented.

Authors' view

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Acc. Nr.: AP0046762

Ref. Code: UR0125

USSR

UDC 621.791.75

NIKHLINSON, YU. I., SUMYATIN, V. I., GOLEMBO, S. B., SLOBIN, B. Z., GRUDO,  
A. I., VAYSBURD, I. SH.

"Welding the Frame of the Self-Propelled Chassis T-16M"

Kiev, Avtomaticheskaya Svarka (Automatic Welding), No 1, 1970, pp 44-46  
(from Avtomaticheskaya Svarka, No 1, 1970, p 80)

Translation: The results of selecting the technological process for  
welding steel 45L with an increased carbon content are discussed. It is  
recommended that the welding be performed in two layers without prelimin-  
ary heating. There are 3 illustrations.

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GOLEMBO, Z. B., VENIKOV, G. V., GARMASH, V. A.

"Increasing the Effectiveness of Information Processing in Control Systems"

Tekhn. Kibernetika. 1969. (Itogi Nauki i Tekhn) [Engineering Cybernetics, 1969 (Results of Science and Technology) -- Collection of Works], Moscow, 1971, pp 185-356, (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V662).

NO ABSTRACT.

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USSR

UDC: 681.34

AVROV, O. M., GOLENDBERG, N. A., KUTSITSKIY, V. G., MIRZOYEV, G. A.,  
MOZZHUKHIN, M. S., POKROVSKIY, V. S., SHAKHPAZOV, S. Kh.

"A Device for Combining the Readings of a Multichannel Angle-Phase-Code Converter"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,  
No 4, Feb 71, Author's Certificate No 292182, Division G, filed 11 Aug 69,  
published 6 Jan 71, p 137

Translation: This Author's Certificate introduces a device for combining the readings of a multichannel angle-phase-code converter which contains charging elements, series-connected switches, combining circuits and flip-flops. As a distinguishing feature of the patent, conversion time is reduced by connecting the output of the coarse reading channel of the converter to the input of the chief readout switch, the second input of this switch being connected to the output of the chief readout flip-flop. The switch output is connected to the input of the first delay element and to the second input of the control flip-flop. The output of the channel for the least significant reading of the converter is connected to the second input of the chief readout flip-flop. The first input of this flip-flop is connected to the first input of the control flip-flop and to the output of the control switch, and the second input of the control switch is connected to the output of the control flip-flop.

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USSR

UDC 51:155.001.57:681.3.06

ADAVICH, P. N., BORISOV, A. N., GOLENDER, V. Ye.

"Adaptive Algorithm for Recognition of Eroded Classes"

Kibernetika i Diagnostika [Cybernetics and Diagnosis -- Collection of Works], No 4, Riga, Zinatne Press, 1970, pp 149-156 (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No 3 V584 by the authors).

Translation: The problem of recognition of patterns in eroded sets consists in restoring the dividing hypersurface on the basis of learning sequences containing the objects and their membership functions to each pattern. An adaptive algorithm for recognition of eroded patterns is presented, consisting of a modification of the known learning algorithm with correction of errors. Results are presented from a comparative study of the ordinary algorithm and its eroded analogue for a model problem and the problem of distinction of manuscript letters.

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Measuring, Testing, Calibrating

USSR

UDC 621.317.757:681.327.2

GOLENISHCHEV, I. A., YELDASHEV, V. V., and MAMONOV, Ye. I.

"Arrangement for the Derivation of Information From Multichannel Analyzers"

Tr. VNII Radiats. Tekhn. [Works of the All-Union Scientific Research Institute of Radiation Technology], 1972, No 7, pp 188-195 (from Referativnyy Zhurnal, No 11, Nov 72. 32. Metrologiya i Izmeritel'naya Tekhnika. Single Issue. Abstract No 11.32.54)

Translation: The arrangement for derivation of information from a multi-channel analyzer makes it possible to set free the "memory" of the pulse analyzer (derivation of 1024 channels takes approximately 45 sec when using the PL-150 punched tape) and to carry out the processing of information with the help of a digital computer. Besides that, the described arrangement can enter into the measuring complex in the capacity of additional channel of information derivation. An experimental model of such arrangement was adjusted and has passed laboratory tests in the system of direct information transmission in digital computer. The characteristic of information carrier, the block diagram, and the design of the arrangement are presented. Four illustrations, one table, six bibliographical references.

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USSR

GOLENTISHCHEV-KUTUZOV, V. A.; SABUROVA, R. V.; SHAMUKOV, N. A. (Kazan' Physics-Engineering Institute, USSR Academy of Sciences)

"Double Acoustical-Magnetic Nuclear-Nuclear Resonance in Crystals with Paramagnetic Impurities"

Leningrad, Solid State Physics; November, 1970; pp 3100-4

ABSTRACT: A description of a method of double acoustical nuclear-nuclear resonance is given. The acoustical nuclear magnetic resonance from the nuclei of paramagnetic ions ( $Al_2O_3$ : 0.07 at. %  $Cr^{3+}$ ) was detected by this method.

The use of such a method, as shown by the experimental results, raised the sensitivity two orders as compared with a method of single acoustical nuclear magnetic resonance. It is shown that with the method of double resonances it is possible to study more closely the interaction between the crystal lattice and nuclear spins as well as between electron and nuclear spins.

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Acc. Nr.

AP0048787

Abstracting Service:  
CHEMICAL ABST.

Ref. Code

5-76 UR0080

90914q Initiation of the polymerization of some vinyl monomers by aqueous solutions of vinylene carbonate. Kuznetsov, Yu. A.; Golenishcheva, S. A.; Klubikova, L. E.; Klimova, O. M. (USSR). *Zh. Prikl. Khim. (Leningrad)* 1970, 43(1), 141-4 (Russ).  $\text{CH}_2\text{:CHCONH}_2$  (Ia),  $\text{MeCH:CHCO}_2\text{H}$  (Ib),  $\text{CH}_2\text{:CHCN}$ ,  $\text{CH}_2\text{:CHOAc}$  (Ic), and  $\text{PhCH:CH}_2$  were polymd. at 20-60° in  $\text{H}_2\text{O}$  in the presence of vinylene carbonate (I) and O. The highest yields of polymer (92-5%) were obtained when the monomer and polymer were completely  $\text{H}_2\text{O}$ -sol. (Ia and Ib). Increasing the temp. shortened the induction period due to acceleration of I hydrolysis, but the intrinsic viscosity ( $\eta$ ) of the polymers decreased. It was preferable to decrease the induction period by introduction of the initiator (aq. I) after prior treatment at 60-70° for 1-2 hr. This treatment decreased the induction period in the polymn. of Ic at 20° to  $\leq 10$ -20 min (compared with 5-6 hr), and did not decrease  $\eta$ . A 1% aq. soln. of I preserved its initiating ability for > 12 days. Introduction of hydrotropic agents such as

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EtOH and dioxane, and increasing the vol. of the aq. phase to a I-H<sub>2</sub>O ratio >1:5 in the homopolymn. of I did not increase the poly(vinylene carbonate) (II) yield. Hydrolysis products of I, viz., HOCH<sub>2</sub>CHO (III) and HCO<sub>2</sub>H, accumulated during I polymn. Increasing the amt. of HCO<sub>2</sub>H in the starting soln. lowered the yield of II and its  $\eta$  only when substantial amts. were added, apparently due to increased hydrolysis at lower pH. III had no effect on I polymn. The yield of II was  $\leq 40\%$  after 48 hr.  
DBJR

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USSR

UDC 621.372.057

GOLENISHCHEVA, V. A., FLEKSER, L. A.

"On a Method of Finding the Transfer Functions of Linear Electronic Circuits on a Computer"

Avtomatiz. proyektir. v elektron. Resp. mezhved. nauch.-tekhn. sb. (Design Automation in Electronics. Republic Interdepartmental Scientific and Technical Collection), vyp. 2, Kiev, "Tekhnika", 1970, pp 99-106

Abstract: The paper deals with a method of determining the transfer functions of linear electronic circuits on a computer. The procedure is based on using a "polynomial foreman" program. The method ensures determination of transfer functions of multifunction circuits on type M-20 computers (M-220, M-222, BESM-4) with two-place core store. Five tables, two illustrations, bibliography of six titles.

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USSR

UDC 621.385.633.032.266

GOLENITSKIY, I.I., ZAKHAROVA, A.N., KHOMICH, V.B.

"Effect Of Conditions For Shaping A Beam On The Output Parameters Of A BWT With Electrostatic Focusing"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue 11, pp 3-11 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A188)

Translation: The results of a computation of a backward-wave tube with periodic electrostatic focusing are presented from the position of nonlinear two-dimensional theory for an O-type device. It is shown that the conditions for shaping a beam have a significant effect on the output parameters of the device (output power, efficiency, range of electrical retuning of the frequency, and so forth). 10 ref. Summary.

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USSR

UDC 621.385.633

GOLENITSKIY, I.I., ZAKHAROVA, A.N., KHOMICH, V.B.

"Forming Of Ribbon Electron Stream In A Dynamic Regime Of A BWT With Periodic Electrostatic Focusing"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 6, pp 3-17 (from RZh--Elektronika i yeye primeneniye, No 10, October 1970, Abstract No 10A159)

Translation: A system of equations is formulated for describing the process of forming beams by a periodic electrostatic field in a dynamic regime of a BWT. The special features are discussed of a solution on a Type M-20 digital computer of problems of dynamic electron optics, and a solution is presented of concrete problems. Author's Summary.

USSR

GOLENKO, D. I., LIVSHITS, S. Ye., TORNOPOL'SKIY, Yu. Ya., YAROKER, Ya. N.

"Study of  $\epsilon$  Networks in Statistical Modeling Processes"

Tr. Leningr. Inzh.-Ekon. In-ta [Works of Leningrad Institute of Economics Engineering], 1972, No 94, pp 43-50 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V273, by B. Granovskiy).

Translation: Set  $M$  in compact metric space  $K$  is called an  $\epsilon$  network in  $K$  if for any point  $t \in K$  there is a point  $t' \in M$  which is not more than  $\epsilon$  distant from  $t$ . If  $m$  is the minimum number of points necessary to construct an  $\epsilon$  network in a certain set  $A \subset K$ , the number  $H = \log_2 m$  is called the  $\epsilon$  entropy of  $A$ . As we know, the  $\epsilon$  entropy of the set can be used to estimate the accuracy of tabulation, integration, as well as various procedures of optimization of function  $F$ , continuous in  $K$ , using the corresponding  $\epsilon$  network. The problem thus arises of constructing a sequence of points  $\{x_i\}_{i=1}^n$ ,  $x_i \in K$ , the  $\epsilon$  entropy of which with any  $n$  is near the maximum possible. In this work for the case  $K = [0, 1]$ , a comparison is given of regular and probabilistic methods of production of an  $\epsilon$  network from this standpoint. The regular method consists in construction of  $1/2$



USSR

Golenko, D. I., Livshits, S. Ye., Tornopol'skiy, Yu. Ya., Yaroker, Ya. N.,  
Tr. Leningr. Inzh.-Ekon. In-ta, 1972, No 93, pp 43-50.

sequences of equally separated points in  $[0, 1]$ , the probabilistic method consists in construction of sequences formed by values of a random quantity, evenly distributed in  $[0, 1]$ . One new method is suggested for construction of an  $\epsilon$  network, the  $\epsilon$  entropy of which increases strictly with increasing number of points.

USSR

UDC 577.4

GOLENKO, D. I., DAKELIN, A. I., KUCHUMOV, YU. M.

"Definition of the Optimal Policy of Filling an Order with a Random Nonstationary Demand in the Material and Technical Supply System"

Tr. Leningr. inzh.-ekon. in-ta (Works of Leningrad Economic Engineering Institute), 1972, vyp. 91, pp 155-163a (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V535)

No abstract

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USSR

UDC: 51

GOLENKO, D. I., KISLOV, Ye. F.

"Mathematical Model for Sale of Goods With Regard to Demand"

Tr. Mosk. ekon.-stat. in-ta (Works of the Moscow Institute of Statistical Economics), 1972, ch. 2, pp 142-150 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4v489)

Translation: The problem reduces to a two-level supply control problem.

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USSR

GOLENKO, D. I., ABAKUMOV, V. I.

"One Problem of Distribution of Resources in a Multilevel System of Control of Reserves"

Tr. Mosk. Ekon.-stat. In-ta [Works of Moscow Institute of Economics and Statistics], No 4, Part 1, 1971, pp 49-65, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V456).

NO ABSTRACT.

USSR

UDC 51.330.115

GOLENKO, D. I., KUCHMOV, Yu. M.

"Statistical Model of Functioning of Control System for Reserves"

Tr. Mosk. Ekon.-Statist. In-ta. Fiz-mat. n. [Works of Moscow Economics-Statistics Institute, Physical and Mathematical Sciences], Part 2, 1970, pp 49-66  
(Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4, V603).

No Abstract.

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USSR

UDC: 8.74

GOLENKO, T. I.

"An Iteration Method of Solving the Optimum Problem of Planning the Work of a Computing Center"

Tr. Leningr. inzh.-ekon. in-ta (Works of Leningrad Engineering Economics Institute), 1972, vyp. 94, pp 30-34 (from RZh-Kibernetika, No 5, May 73, abstract No 5V784 by V. Mikheyev)

Translation: The paper gives the formulation and an approximate solution of a specific optimization problem in planning jobs inside computing centers. The search for the solution on each stage is carried out within the boundaries found on the preceding stage. In this connection, each iteration is completed by finding refined boundaries  $[A_{i+1}, B_{i+1}]$  such that  $A_{i+1} > A_i$  and  $B_{i+1} > B_i$ . The upper boundary of the set of permissible plans

may be defined as  $A_i = \sup T_i = \sum_{j=1}^n t_{i,j}$ . The lower boundary of the set of per-

missible plans is found from the following considerations. Let it be required to construct the optimum plan of work of  $m$  machines for solving

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USSR

GOLENKO, T. I., Tr. Leningr. inzh.-ekon. in-ta, 1972, vyp. 94, pp 30-34

n problems. It is assumed that the most labor-consuming problem is solved on the most productive machine. The next problem is to be solved on the next most productive machine, etc. As a result, the solution will include the following values of the matrix  $t_{i,n}, t_{i,n-1}, \dots$ . Then the quantity  $B_i = \inf T_n = t_{i,n}$  is taken as the lower boundary of the set of possible schedules. The paper gives the appropriate iteration algorithm for finding the optimum plan of operation of a computing center.

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- 100 -

USSR

UDC 577.1:615.7/9

PAUSTOVSKAYA, V. V., RAPPOPORT, M. B., GOLENKO, V. S.

"Data on the Toxicological Evaluation of the Hexahydrodimethyl Ester of Terephthalic Acid"

Farmakol. i toksikologiya. Resp. mezhved. sb. (Pharmacology and Toxicology. Republic Interdepartmental Collection of Works), 1970, No 5, pp 154-157 (from RZh-Biologicheskaya Khimiya, No 19, 10 Oct 70, Abstract No 19 F1794 by A. Ignat'yev)

Translation: This substance has low toxicity and when injected into white rats and mice (1/5-1/10 LD<sub>50</sub>) it produces only a tendency for total blood protein, including the albumin fractions, to decrease with a slight increase in the amount of globulin fractions. Some changes occur in the higher divisions of the animals' central nervous system.

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USSR

UDC 623.983:621.395

GOLENKOVA, A.N., PAVLOV, L.YE.

"Device For Calibration Of Hydrophones"

USSR Author's Certificate No 258073, filed 4 July 68, pub 14 Jan 71  
(from RZh:Elektronika i yeye primeneniye, No 1, Jan 72, Abstract No 1A647P)

Translation: A device is proposed for calibration of hydrophones, which contains a high-frequency oscillator connected across a switch with a radiator and a reversible converter, to the output of which, across a voltage divider, is connected an indicator, and a low-frequency oscillator connected across a voltage divider and the switch with the indicator. With the object of simplifying the process and decreasing the measuring time, to the output of the low-frequency oscillator a block for extraction of the square root is connected, the output of which is connected to the indicator. Use of the low-frequency oscillator during extraction of the square root excludes frequency errors and simplifies the design of the block for extraction of the square root. 1 ill. L.Z.

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1/2 009 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--CHANGE IN THE AMINO ACID COMPOSITION OF RYE PROTEIN DURING RIPENING  
-U-  
AUTHOR--(03)-PRIYEZZHEVA, L.G., GOLENKOV, V.F., GILZIN, V.M.  
COUNTRY OF INFO--USSR  
SOURCE--PRIKL. BIOKHIM. MIKROBIOL. 1970, 6(1), 26-31  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--CEREAL CROP, PROTEIN, CHEMICAL COMPOSITION, AMINO ACID  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1996/0609 STEP NO--UR/0411/70/006/001/0026/0031  
CIRC ACCESSION NO--AP0117837  
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--15OCT70

CIRC ACCESSION NO--AP0117837

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE AMINO ACID COMPN. OF RYE GRAIN PROTEINS AT DIFFERENT RIPENING STAGES WAS INVESTIGATED WITH AN AMINO ACID ANALYZER. DURING THE RIPENING PROCESS AN INCREASE OF THE RELATIVE CONTENTS OF CYSTEINE, PROLINE, AND GLUTAMIC ACID WAS OBSO., TOGETHER WITH A DECREASE OF ALANINE, VALINE, LYSINE, ASPARTIC ACID, THREONINE, AND GLYCINE; THE OTHER AMINO ACIDS WERE ESSENTIALLY UNCHANGED.

UNCLASSIFIED

USSR

UDC: 621.375.82

GOLGER, A. L., LETOKHOV, V. S.

"Population Inversion During Absorption Saturation by Rotational-Vibrational Transitions of Molecules"

Moscow, Kvant. elektronika--sbornik (Quantum Electronics--collection of works), No 1(13), "Sov. radio", 1973, pp 30-40 (from RZh-Fizika, No 8, Aug 73, abstract No 8D1007 by the authors)

Translation: A theoretical examination is made of the possibility of producing population inversion in absorption saturation of the fundamental oscillation by optical resonance pumping for the case in which equilibrium is maintained with respect to the rotational sublevels of molecules. It is shown that pumping in a single line alone produces emission with relatively low energy loss (by the magnitude of a rotational quantum) on a large number of rotational-vibrational lines. The coefficient of absorption (gain) in P-, Q- and R-lines is considered as a function of the species and number of the line which is resonant with pumping and of the value of the rotational gas constant. As an example, the authors calculate the coefficient of amplification (absorption) of gaseous HF by the  $1 \rightarrow 0$  transition of the HF molecule

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USSR

GOLGER, A. L., LETOKHOV, V. S., Kvant. elektronika, "Sov. radio", 1973,  
pp 30-40

with pumping in the P-line. It is shown that at 300<sup>o</sup> Kelvin and a pressure  
of 10 mm Hg for HF and 200 mm Hg for the buffer gas, pumping in line P(0)  
in HF can give a coefficient of amplification on the order of 0.5 cm<sup>-1</sup>.  
Bibliography of 12 titles.

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- 35 -

USSR

UDC 669.893.018.9(088.8)

GOLEV, A. K., DELYAYEV, G. S., ZAYKO, V. P., RYSS, M. A.

"Method of Smelting Barium Alloys"

USSR Author's Certificate No. 277001, Filed 9/07/68, Published 20/10/70.  
(Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5  
G178P by G.Svodtseva).

Translation: In producing Ba alloy by the silicothermal method, the reduction process is performed with expenditure of quartzite in a quantity of 10-50% of the weight of the  $\text{BaSO}_4$  in the charge. In order to assure complete separation of metal from slag,  $\text{CaC}_2$  is introduced to the slag in a quantity of 20-40% of the slag weight. The method provides for production of an alloy of the following composition (in percent): Ba 3-50, Ca 1-20, Si 40-70, Fe 15-30, S up to 0.080.

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- END -

6022

CSO: 1842-W

1/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--REDUCTION OF MAGNESIUM, CALCIUM, STRONTIUM AND BARIUM WITH SILICON  
AND ALUMINUM FOR THE PRODUCTION OF COMPLEX MODIFIERS -U-  
AUTHOR--(05)--GOLEV, A.K., ZAYKO, V.P., RYSS, M., VOLOSHCHENKO, M.V.,  
KOMPANICHENKO, V.M.  
COUNTRY OF INFO--USSR

6  
SOURCE--V SB. TEZISY DOKL. VIII KONFERENTSII PO TEORII I PRAKT. PROIZ-VA  
REFERENCE--KZH-TEKHNLOGIYA MASHINOSTROYENIYA, NO 3, MAR 70, ABSTRACT E  
DATE PUBLISHED-----70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, MATERIALS, MECH., IND.,  
CIVIL AND MARINE ENGR  
TOPIC TAGS--METAL REDUCTION, MAGNESIUM, CALCIUM, STRONTIUM, BARIUM,  
SILICON, ALUMINUM, SMELTING FURNACE, NODULAR IRON, CAST IRON,  
METALLURGIC CONFERENCE

CENTRAL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1662

STEP NO--UR/0000/70/000/000/0000/0000

CIRC ACCESSION NO--AR0127136

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AR0127136

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT IS NOTED THAT DURING REDUCTION OF MG FROM MG OXIDE BY 75PERCENT FERROSILICON WITH THE USE OF FLUX (FLUORITE), IT IS POSSIBLE TO OBTAIN 3-4PERCENT MG IN ALLOY. WITH REDUCTION IN THE PRESENCE OF CA OXIDE IT IS POSSIBLE TO OBTAIN UP TO 5-6PERCENT MG IN THE ALLOY. CA WAS REDUCED BY 75PERCENT FERROSILICON UP TO 22-24PERCENT OF ITS CONTENT IN ALLOY. USE OF CALCIUM IN INDUSTRIAL SMELTING IS AS HIGH AS 25-35PERCENT IN THE ABSENCE OF OTHER OXIDES IN CHARGE. COMBINED REDUCTION OF CA, AL AND SI ALLOWS TO BRING RECOVERY OF CA FROM OXIDES UP TO 40PERCENT AND ITS CONCENTRATION IN ALLOY UP TO 24-26PERCENT. REDUCTION OF SR WAS MOST DIFFICULT OF THE ALKALINE EARTH METALS, ITS CONCENTRATION DURING COMPLEX SILICON CALCIUM ALUMINOTHERMIC PROCESS DID NOT EXCEED 15PERCENT. BARIUM WAS MOST EASILY REDUCED. DURING REDUCTION OF BA BY 75PERCENT FERROSILICON, ITS CONCENTRATION REACHED 35PERCENT AND ITS SHIFT TO ALLOY 45PERCENT. DURING COMPLEX CALCIUM SILICON ALUMINOTHERMIC PROCESS THE AMOUNTS WERE 45 AND 80PERCENT RESPECTIVELY.

UNCLASSIFIED



USSR

UDC 632.95

MANDEL'BAUM, Ya. A., ABRAMOVA, G. L., GOLEVLEVA, L. M., FEDOSEYENKO, L. G.,  
ANDREYEVA, Ye. I., and PRONCHENKO, T. S.

"Fungicides"

USSR Author's Certificate No 254254, Filed 8 Jul 68, Published 13 Mar 72  
(from Referativnyy Zhurnal -- Khimiya, Svodnyy Tom (I, L-S), No 1(II),  
1973, Abstract No 1N490P by T. A. Belyayeva)

Translation: Compounds of a general formula  $(RO)R'HNP(S)SR''$  (I) ( $R_1 = C_1 - C_3$ -alkyl or chloralkyl,  $R'$  and  $R'' = C_1 - C_4$ -alkyl) are suggested for use as fungicides. They were tested on pure cultures of phytopathogenic fungi and gummosis bacteria. The LD<sub>50</sub> for rice weevil of these compounds was determined. Compounds I are toxic for fungus mycelium, and compounds  $(EtO)PrHNP(S)SPr$  and  $(PrO)PrHNP(S)SPr$  (Ia) are effective against Verticillium cotton wilt and their increase the cotton yield 1.5 times.

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1/2 026 UNCLASSIFIED PROCESSING DATE--23OCT7  
TITLE--POLARIZED FLUORESCENCE OF STAINED MUSCLE FIBERS. IV. CHANGE IN THE  
ORIENTATION OF ACRIDINE ORANGE IN GLYCERINATED FIBERS AFTER ATP ACTION  
AUTHOR--(02)-KAULIN, A.B., GOLFAND, K.A.

COUNTRY OF INFO--USSR

SOURCE--TSITOLOGIYA 1970, 12(2), 172-7

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ADENOSINE TRIPHOSPHATE, GLYCEROL, MUSCLE TISSUE, BIOLOGIC  
STAIN, FLUORESCENCE, BIOLOGIC PIGMENT, IRON COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/2020

STEP NO--UR/9053/70/012/002/0172/0177

CIRC ACCESSION NO--AP0120663

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--23OCT7

CIRC ACCESSION NO--AP0120663

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AZIMUTHAL CHARACTERISTICS OF THE POLARIZED FLUORESCENT OF THE ACRIDINE ORANGE ABSORBED ON THE GLYCERINIZED RABBIT, MUSCLE FIBERS WERE STUDIED UNDER INFLUENCE OF ATP IN CONCNS. EVOKING MUSCLE CONTRACTION. THE CHANGES OF THE AZIMUTHAL CHARACTERISTICS SHOWED THAT SOME PART OF THE DYE MOL. WAS BOUND TO MYOSIN IN THE CENTER OF ATPASE ACTIVITY. HOWEVER, THE MAIN PART OF THE DYE WAS BOUND TO THE PART OF THE MYOSIN MOL. WITH NO ENZYMIC ACTIVITY.

FACILITY: LAB. CELL PHYSIOL., INST. CYTOL., LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 535.58:537.525

VASIL'KOVSKIY, A. A. and GOL'FENSHTEYN, P. N.

"Contactless Method of Measuring and Stabilizing the Temperature of Electron Emitters in a Vacuum"

Moscow, Metrologiya, No 5, May 73, pp 31-37 -

Abstaact: A method of measuring the temperature of a body emitting electrons in a vacuum is examined along with the possibility of stabilizing the emitter temperature by means of achieving a feedback between the current direction in the circuit of the measuring electrode and the filament voltage of the emitter. Theoretical relationships between temperature of the surface and magnitude of the sustaining potential were determined for tungsten, molybdenum, and tantalum emitters. 3 figures, 1 table, 6 bibliographic references.

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AA0039840-

GOLGER L.I. UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent,

3/70

237081 APPARATUS FOR CULTIVATING MICROORGANISMS  
such as fungi, comprises a rotating drum  
1 provided with a charging hatch 2, and two hollow  
pivots 3, through which tubes 4 and 5 are passed.  
Steam, sterile water, air and vaccination prepar-  
ations are consecutively fed through tube 4  
Tube 5 serves as an outlet for steam, and culture  
suspension. The end of tube 5 is branched, and one  
of the branches is provided with pins 6. The drum  
is equipped with blades 7 fixed to springs, which  
improves the mixing and aeration of the medium.  
The charging hatch 2 is provided with a filter  
made, e.g. of Petryanov's fabric. The medium is

5

6

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charged through hatch 2, and then sterilised with steam at 2-3 atm. gauge for 60-70 mins. The medium is allowed to cool, then sterile water and the vaccination preparation are introduced through tube 4. When the drum rotates, the blades 7 strike pins 6, and vibrate, thus agitating the medium and the air

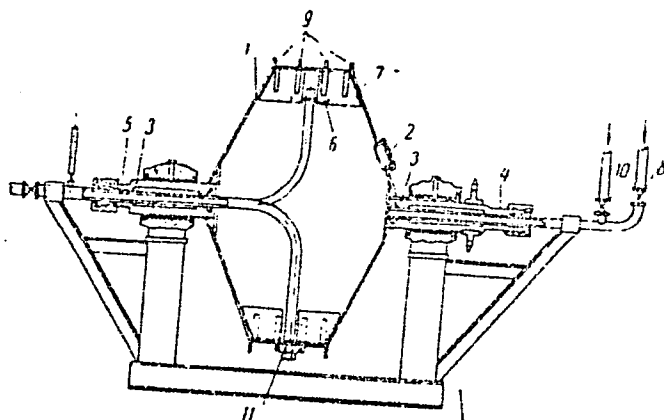
in the drum. A considerable intensification of the cultivation process is achieved. 16.10.67. as 1190489/28-13. S P.KOLOSKOV et alia. All-Union Institute of Alcohol and Liqueur Industry. (20.6.69.) Bul.8/12.2.69. Class 6a. Int.Cl. C12k.

AUTHORS: Koloskov, S. P.; Yarovenko, V. L.; Kalunyants, K. A.;  
Makeyeva, A. N. and Golger, L. I.

Vsesoyuznyy Nauchno - Issledovatel'skiy Institut  
Spirtovoy i Likero - Voduchnoy Promyshlennosti

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AA0039840



75-219

Nickel

3

USSR

UDC: 669.243.45

SHAMRO, E. A., VYAZ'MIN, O. A., YEVLANOV, S. F., GOLGER, S. P., BONDARENKO, B. I., and PEKACH, V. F.

"Reduction Kinetics of Commercial Nickel Oxide in a Fluidized Bed Using Gas Mixtures as Reducing Agents"

Moscow, Tsvetnyye Metally, No. 12, Dec 70, pp 10-13

Abstract: Results of laboratory studies are presented on the reduction of sintered nickel oxide in a fluidized bed. The experiments were conducted in quartz reactors, 35-38 mm in diameter, with external electric heating. The degree of reduction of the material was measured by weight differences between the initial and reduced samples. Allowances were made for weight losses related to natural analysis of visual observations of the quality of fluidization and data on the beginning of conglomeration of the material, providing an optimum value of fluidization of  $w_{fl} = 2$ . The experimental.

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USSR

SHAMRO, E. A., et al, Tsvetnyye Metally, No. 12, Dec 70, pp 10-13

results on reducing nickel oxide with hydrogen-carbon monoxide ( $H_2:CO=1:1$ ) and hydrogen-methane ( $H_2:CH_4=2:1$ ) mixtures have shown that the reduction capacity of hydrogen-carbon monoxide mixtures depends largely on hydrogen content since hydrogen is chemically more active. In the hydrogen-methane mixture both are fairly active reducing agents. Figures in the original article demonstrate the dependence of the degree of reduction on reduction duration with converted gas at various temperatures and the dependence of the degree of gas utilization on the duration of reduction with hydrogen at various temperatures. The gas utilization efficiency is a linear function of the height of the layer of material being reduced. It was found that the gas utilization efficiency in reduction with converted gas is higher than that with hydrogen.

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AA 0044266

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

2/70

243040 CONTACTLESS SYNCHRONOUS GENERATOR WITH COMBINED  
EXCITATION achieves higher specific power

capability. Its components are: permanent magnet (1) with pole-piece (4); inductor system comprising exciter winding (7), cylindrical poles (2,3), star-shaped rotor poles (5,6); stator (8), non-magnetic shaft (9), six-sided bushing (10), hubs (11,12) for inductor rotor. The magnetic system is arranged so that cylindrical poles (2) join pole-pieces (4) of one polarity and poles (3) of the other system join pole-pieces of other polarity. In order to reduce the permeance between the six-sided bushing (10) and inductor rotor hubs (11,12), the hubs are axially removed and the star-shaped poles are slanted.

18.7.67 as 1173847/24-7. V.G.ANDREEV et al. (25.9.69)

Bul 16/5.5.69. Class 21d<sup>2</sup>. Int.Cl. H 02k.

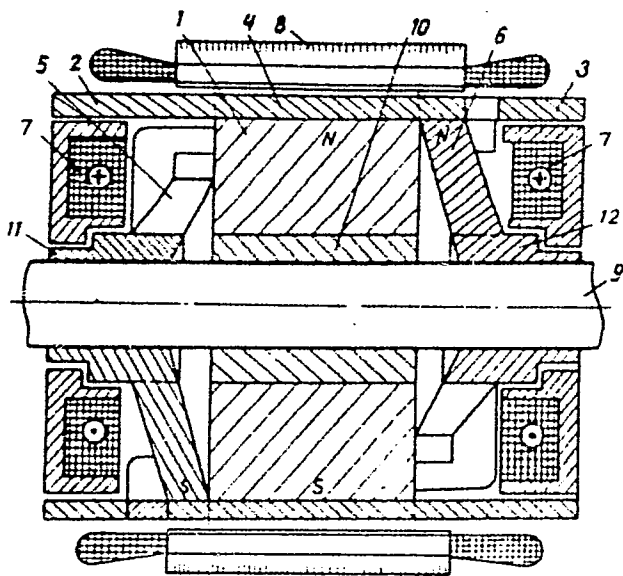
AUTHORS: Andreyev, V. G., Golgofskiy, E. I., Kuks, V. Ya.,  
Livshits, E. Ya., Starostin, A. P.

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8

USSR

UDC 541.64.546.76

GOIGOTIU, T., and ROŞCA, I., Jassy Polytechnic Institute, Jassy

"Coordination Polymers from  $\text{Cr}^{\text{III}}$  Acetylacetonate and Diorganophosphinic Acids"

Moscow, Vysokomolekulyarnyye Soyedineniya, Vol 15 (A), No 9, Sep 73, pp 2086-2093

Abstract: Coordination polymers that contained Cr were prepared by reacting  $\text{Cr}^{\text{III}}$  acetylacetonate with diphenylthio-, diphenyldithio-, dibutyl-, diethyl-, diethylthio-, and diethyldithiophosphinic acids. The polymers contained 8.10-13.72% Cr. Thermogravimetric and differential thermal analysis of the polymers was carried out. Decomposition of the polymers began at 200-300° and was accompanied by the evolution of heat. Those containing S and alkyl groups has the lowest thermal stability. The end product of the decomposition was  $\text{Cr}_2\text{O}_3 \cdot n\text{P}_2\text{O}_5$  in every case. A scheme of the formation of molecular orbitals in the polymers from those of the central ion  $\text{Cr}^{3+}$  and of the ligands is proposed. The polymers derived from diphenylthio- and diphenyldithiophosphinic acids exhibited the properties of semiconductors at 20-200°. The experimental results showed that every  $\text{Cr}^{3+}$  ion in the polymers was bound to one acetylacetonate group and two phosphinic acid residues, all of which functioned as bidentate ligands. Cr thus had the coordination number six.

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USSR

UDC:

~~GOLICHEV, I. I.~~ and KRASNUSHKIN, P. YE., Bashkir Branch of the USSR Academy of Sciences and the Mathematics Institute imeni V. A. Steklov of the USSR Academy of Sciences

"Spectral Source-Like Expansions in Wave Propagation Theory and in the Quantum Theory of Potential Scattering"

Moscow, Teoreticheskaya i Matematicheskaya Fizika, Vol 10, No 3, Mar 1972, pp 370-387

Abstract: The authors use linear, non self-adjoint, differential operators to obtain and study the spectral source-like solutions (expansion with respect to normal waves) to problems in the theory of radio wave propagation and the quantum theory of potential scattering. The study is in two stages: 1) spectral source-like expansion in the light of the spectral theory of operators, and 2) the mathematical basis for spectral source-like expansion. The latter includes the following: 1) construction of contour integrals, 2) theorem on expansion with respect to normal waves, and 3) proof as to the discrete nature of the spectrum and completeness. The authors express their gratitude to M. K. Polivanov, V. A. Kolkunov, and Ye. N. Fedorov for a series of interesting discussions related to the physical aspects of the problem. Original article: one figure, 37 formulas, and 27 bibliographic entries.  
1/1

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1/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--INDICATIONS FOR NEPHRECTOMY AND THE FATE OF SUBJECTS LEFT WITH A  
SOLITARY KIDNEY -U-  
AUTHOR--(02)-PYTEL, A.YA., GOLIGORSKIY, S.D.  
COUNTRY OF INFO--USSR  
SOURCE--UROLOGIYA I NEFROLOGIYA, 1970, NR 2, PP 14-20  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--KIDNEY, SURGERY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1985/1522 STEP NO--UR/0606/70/000/002/0014/0020  
CIRC ACCESSION NO--AP0101605  
UNCLASSIFIED

2/2 019  
CIRC ACCESSION NO--AP0101605

UNCLASSIFIED

PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PERSONAL EXPERIENCE AND A CRITICAL EVALUATION OF LITERATURE SOURCES WARRANT THE AUTHORS TO INFER THAT THE PRESENCE IN THE ORGANISM BUT OF A SOLITARY KIDNEY AFTER NEPHRECTOMY OF THE CONTRALATERAL ONE DOES ALLOW SUCH SUBJECTS TO BE CONSIDERED BUT AS RELATIVELY HEALTHY. NOTWITHSTANDING A COMPLETE PROVISION FOR HOMEOSTASIS, NORMAL CONTENT IN THE BLOOD OF RESIDUAL NITROGEN, PROPER WATER ELECTROLYTE AND ACID BASE BALANCE IT IS NOT TO BE BELIEVED THAT THE ORGANISM HAS BEEN SPARED THE DAMAGE INFLICTED BY NEPHRECTOMY. THE RESERVE POTENTIALITIES ARE NOT GREAT AND THERE IS A MENACE OF THE REMAINING KIDNEY LOOSING ITS ACTION POTENTIAL, ESPECIALLY UNDER AN ELEVATED FUNCTIONAL LOAD. HENCE, THE NEED FOR DISPENSARY OBSERVATION OVER PERSONS WITH SUSTAINED NEPHRECTOMY, AND THIS IN SPITE OF THE ABSENCE IN THE REMAINING KIDNEY OF ANY MORBID PROCESSES. THE DISPENSARY OBSERVATION IS CALLED FOR TO ALSO FACILITATE THE EARLIEST POSSIBLE DETECTION OF PATHOLOGICAL CHANGES IN THE REMAINING KIDNEY. THE LATTER DEVELOP MOST OFTEN IN SUBJECTS IN WHOM NEPHRECTOMY WAS PERFORMED IN CONNECTION WITH NEPHROLITHIASIS. PARTICULAR VIGILANCE IS REQUISITE AS TO A POSSIBLE DEVELOPMENT OF PYELONEPHRITIS, REGARDLESS OF THE KIND OF MALADY THAT LED UP TO NEPHRECTOMY. AT PRESENT, THE TREATMENT OF PATIENTS WITH A SOLITARY KIDNEY IS MUCH MORE EFFECTIVE THAN IT USED TO BE BEFORE THIS BEING DUE TO APPLICATION OF METHODS CORRECTING THE DISTURBED HOMEOSTASIS. INDICATIONS FOR OPERATIVE TREATMENT IN PERSONS WITH CORRESPONDING DISEASES IS MORE CATEGORICAL THAN THIS IS THE CASE FOR SUBJECTS WITH BOTH KIDNEYS.

UNCLASSIFIED

Acoustics

USSR

GOLIK, A. Z.; ADAMENKO, I. I.; VARETSKIY, V. V. (Kiev State University)

"Study of the Velocity of Ultrasonic Propagation at Frequencies of 0.62-10 Mc in n-Hexane, n-Heptane, n-Octane, and Cyclohexane at Pressures up to 2500 Atm. and Temperatures up to 120°C"

Kiev, Ukrainskiy Fizicheskij Zhurnal; December, 1972; pp 2048-51

ABSTRACT: The paper describes the methods and results of studies on ultrasonic velocity propagation in n-hexane, n-heptane, n-octane, and cyclohexane within a frequency range of 0.62-10 Mc at pressures up to 2500 atm. and temperatures up to 120°C. It is shown that within the ranges of temperatures, pressures, and frequencies studied, sonic velocity dispersion is absent for all paraffins under study. For liquids in which the P-V-T relation is described by the Tait

equation the dependence of  $\frac{c^2 P^2}{\gamma}$  on the pressure is linear.

At pressures from 1 to 2000 atm. a regularity is observed in the disposition of the sonic velocity polytherms: the greater the energy of collective interaction, the greater the ultrasonic propagation velocity within the ranges of temperature and pressure studied. At pressures of 2000 atm. and higher the differences in ultrasonic velocities for all the liquids studied are within the limits of experimental error (less than 0.2%).

Using the Bridgman model on two mechanisms of the effect of pressure on the structure of the liquids, the authors came to the conclusion that with an increase in pressure the packing varies in a similar manner for n-hexane, n-heptane, and n-octane particles and at 2000-2500 atm. is similar to the packing of cyclohexane molecules.



USSR

UDC 541.62+543.422+546.18

KATOLICHENKO, V. I., YEGOROV, Yu. P., BOROVNIKOV, Yu. Ya., and GOLIK, G. A.,  
Institute of Organic Chemistry, Academy of Sciences UkrSSR

"Study of the Conformation of Alkylphosphonic and Phosphoric Acid Esters"

Leningrad, Zhurnal Obshchey Khimii, Vol 43, No 11, Nov 73, pp 2490-2497

Abstract: In a study conducted on dialkyl alkylphosphonates and trialkyl phosphates, the conformation was determined on the basis of dipole moments and the ratio of conformation isomers on the basis of IR spectra. It was established that the simplest dialkyl alkylphosphonates were present in a liquid phase (solutions or melt) in the form of an equilibrium mixture of trans-gauche and gauche-gauche conformation isomers, while trialkyl phosphates were present in the form of a mixture of trans-trans-gauche and gauche-gauche-gauche isomers. The energy difference of the isomers in the equilibrium mixtures was less than 0.5 kcal/mole. In the case of esters with long alkyl chains, more than two conformation isomers were apparently present.

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USSR

UDC 547.26'18

GORDEYEV, A. D., KYUNTSEL', I. A., GOLIK, G. A., and SHOKOL, V. A.

"Study of the Structure of Phosphazo Phosphonils -- Products of the Reaction of Amido Esters of Alkyl Phosphonic Acids with Phosphorus Pentachloride Using the Nuclear Quadrupole Resonance Spectra of  $^{35}\text{Cl}$ "

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 9-12

Abstract: The study of the nuclear quadrupole resonance spectra of  $^{35}\text{Cl}$  of phosphazo phosphonils obtained from the amides of alkyl and aryl esters of methyl and chloromethyl phosphonic acids with phosphorus pentachloride was used to establish that they have the structure of alkylidichlorophosphazo and alkylaroxychlorophosphazo dichlorophosphonils and not the trichlorophosphazochloro and trichlorophosphazo alkylaroxyphosphonils isomeric to them. The  $\rightarrow\text{P}=\text{N}-\text{P}(=\text{O})=$  grouping is more stable when the oxygen atom is on the phosphorus atom bound to the more electronegative atoms or groups. The measurements were performed on the pulse spin echo nuclear quadrupole resonance spectrometer equipped with a device for blowing liquid nitrogen vapor through the specimen. The measurement procedure was analogous to that described earlier [A. D. Gordeyev, et al., ZhSKh, No 11, 773, 1970].

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Pesticides



USSR

UDC 632.95

PROTOPOPOVA, G. V., DZYUBAN, A. D., REYDALOVA, L. I., GOLIK, G. A., and SHOKOL, V. A.

"Insecticidal and Acariasicidal Properties of the Esters of Phosphazomethylphosphonic Acid"

Fiziol. aktivn. veshchestva. Resp. mezhved. sb. (Physiological Effects of Compounds, Republic Interscience Symposium), Vyp 4, 1972, pp 11-13 (from Referativnyy Zhurnal -- Khimiya, No 4(II), 1973, Abstract No 4N603 by T. A. Belyayeva)

Translation: The esters of phosphazomethylphosphonic acid under laboratory conditions demonstrate insecticidal and acariasicidal properties of a contact and systemic nature. Of the compounds studied,  $\text{MeP(O)(OEt)N=P(OisoPr)}_3$  (compound I) showed the strongest contact effect --  $\text{SK}_{50} = 1.78$  in 3 days for rice weevils and 0.39 for grain aphids. Contact insecticidal activity was increased by using iso-Pr in the trialkoxyphosphazomethyl group. Comp. I in a 0.05% concentration results in 96% mortality of the mite *Tetranychus urticae* on the second day.

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UDC 546.185

USSR

SHOKOL, V. A., GOLIK, G. A., LEVCHUK, Yu. N., YEGOROV, Yu. P., and DERKACH, G. I. (deceased), Institute of Organic Chemistry, Academy of Sciences, Ukrainian SSR

"Acidolysis of Reaction Products of Amidoesters of Alkylphosphonic Acids With Phosphorus Pentachloride"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 4, Apr 73, pp 747-750

Abstract: Alkyldichlorophosphazo- and alkylaroxychlorophosphazodichlorophosphonyls react with anhydrous formic acid yielding alkyldichlorophosphazo- and alkylaroxychlorophosphazochloroxyphosphonyls. Acidolysis of trichlorophosphazotrichloromethylchlorophosphonyl yields the chloroanhydride of N-dichlorophosphonylamidotrichloromethylphosphonic acid. The structures of the products were proposed on the basis of NMR<sup>31</sup>P and IR spectroscopic data. All of these products are dense liquids soluble in benzene, dioxane, and acetone, insoluble in petroleum ether.

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UDC 547.241

USSR

SHOKOL, V. A., GOLIK, G. A., LEVCHUK, Yu. N., YEGOROV, Yu. P., and  
DERKACH, G. I. (Deceased), Institute of Organic Chemistry, Academy of  
Sciences, UkrSSR

"Structure of the Reaction Products of Amidoesters of Alkylphosphonic  
Acids With Phosphorus Pentachloride"

Leningrad, Zhurnal Obshchey Khimii, Vol 43(105), No 2, Feb 73, pp 267-274

Abstract: Reactions of phosphorus pentachloride with the amides of ethyl  
and aryl esters of methyl-, chloromethyl-, dichloromethyl-, and trichloro-  
methyl phosphoric acid were studied in an attempt to determine under what  
conditions isomeric products could be obtained. Analyzing the products  
by the IR, NMR<sup>31</sup>P, and NMR <sup>1</sup>H spectroscopical methods, it was shown that  
depending on the alkyl radical attached to the phosphorus atom, the  
reaction products could either be trichlorophosphazoalkylchloro- and  
alkylaroxyphosphonyls, or their isomers -- alkyl-dichloro- and alkyl-  
aroxychlorophosphazodichlorophosphonyls or their mixture.

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USSR

UDC 547.26'118

SHOKOL, V. A., GOLIK, G. A., TSYBA, V. T., YEGOROV, YU. P.,  
DERKACH, G. I. (DECEASED), Institute of Organic Chemistry, Kiev,  
Academy of Sciences Ukrainian SSR

"Phosphoazoalkylphosphonic Acid Esters"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 8, Aug 70,  
pp 1680-1691

Abstract: Reaction of trialkylphosphites, triamidophosphites, dialkyl- and diamidophosphonites, and triphenylphosphine with the azides of alkylphosphonic acid esters yields esters of phosphazoalkylphosphonic acids -- compounds with pesticidal activity. The reaction is exothermic and occurs easily at room temperature either in ether or in benzene. After evaporation of the solvent, liquid phosphazophosphinyls are obtained. Depending on heating conditions, the esters of trialkyl- and methyldialkylphosphazoalkylphosphonic acids rearrange into diesters of the alkyl dialkoxyphosphazophosphoric acid or into esters of N-alkyl-N-dialkylphosphonoamidoalkylphosphonic acid. In all cases the side products consist of the

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USSR

SHOKOL, V. A., et al, Zhurnal Obshchey Khimii, Vol 40, No 8, Aug 70, pp 1680-1691

diethyl ester of methylphosphonic acid and a yellow, viscous fluid, probably polyphosphorene formed by condensation. Detailed analysis of the IR and NMR spectra of the above compounds is reported and characteristic bands and shifts are listed. Physical properties of the products obtained are tabulated, but no biological data are reported.

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1/2 013 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--EXTRACTIVE PROPERTIES OF HEXYL PHENYLSULFONAMIDO PHENYLPHOSPHONATE  
-U-  
AUTHOR--(051)-SHEVCHENKO, F.D., KUZINA, L.A., AGEYEV, V.A., GOLIK, G.A.,  
NARBUT, A.V.  
COUNTRY OF INFO--USSR  
SOURCE--DOPJIV. AKAD. NAUK UKR. RSR, SER. B 1970, 32 (3), 261-3  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--BENZENE DERIVATIVE, SULFONAMIDE, ORGANIC PHOSPHORUS COMPOUND,  
SOLUBILITY, DISSOCIATION CONSTANT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3002/1303 STEP NO--UR/0442/70/032/003/0261/0263  
CIRC ACCESSION NO--AF0128717  
UNCLASSIFIED



2/2 013

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0128717

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. PHSD SUB2 N:PPHCL SUB2 (0.005 MOLE) IN 25 ML C SUB6 H SUB6 WAS TREATED WITH 0.23 G NA IN 15 ML HEXYL ALC. 12 HR TO GIVE PHSD SUB2 N:PPH(OC SUB6 H SUB13) SUB2 (1). I (0.001 MOLE) WAS HEATED 3 HR WITH 15 ML 0.4N AQ.-ALC. NAOH TO GIVE 60PERCENT PHSD SUB2 N(NA)P(OC)PH(OC SUB6 H SUB6, DISTRIBUTION CONST. BETWEEN C SUB6 H SUB6 AND H SUB2 O, AND DISSOCN. CONST. (2.44) OF THE FREE ACID WERE DETD. FACILITY: KIIV. DERZH. UNIV., KIEV, USSR.

UNCLASSIFIED

USSR

UDC 547.241

SHOKOL, V. A., ~~GOLIK, G. A.~~, and DERKACH, G. I., (deceased), Institute of Organic Chemistry, Academy of Sciences Ukrainian SSR

"Azidoisocyanate of the Methylphosphonic Acid and Its Derivatives"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 3, Mar 71, pp 545-550

Abstract: Reaction of chloroanhydride of methylphosphonic acid azide with a suspension of sodium cyanate in chloroform yields the azidoisocyanate of methylphosphonic acid (I) -- a colorless liquid with a sharp odor. Reacting (I) with alcohols, phenol, and aniline yields the azides of carbalkoxy- and carbophenoxyamides and phenylcarbamide of methylphosphonic acid which, when reacted with phosphites and phosphine give corresponding carbalkoxy- and carbophenoxyamides, and phenylcarbamide of (P-phosphazo)-methylphosphonic acid. IR spectra of these azides exhibited an intensive band at 2158-2179  $\text{cm}^{-1}$ , characteristic of the azido group.

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USSR

UDC: 546.185

SHOKOL, V.A., GOLIK, G.A., TSYBA, V.T., and DERKACH, G.I., (Deceased), Institute of Organic Chemistry, Kiev, Academy of Sciences Ukrainian SSR

"Structure of Reaction Products of Amidoesters of Alkylphosphonic Acids With Phosphorus Pentachloride"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 4, Apr 70, pp 931-932

Abstract: A detailed study of the reaction product of amide of ethyl ester of methylphosphonic acid with phosphorus pentachloride showed that in its physicochemical constants it is identical to the isomeric product obtained by the authors from amide of diethyl ester of phosphoric acid and methyltetrachlorophosphorus. A comparison of IR spectra,  $P^{31}$  NMR and especially  $Cl^{35}$  NQR spectra shows that the compounds obtained in both cases have the structure of methyldichlorophosphazophosphoric acid dichloride  $CH_3(Cl_2)P_{\alpha} = NP_{\beta} OCl_2$  rather than isomeric trichlorophosphazomethylphosphonic acid  $CH_3PO(Cl)N = PCl_3$ .

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USSR

UDC 621.315.422

GOLIK, L.L., ARTOBOLVSTAYA, YE.S., YELINSON, M.I.

"Influence Of Light On The Parameters Of SbSJ Crystals Close To Phase Transition"

Radiotekhnika i elektronika, Vol XVII, No 6, June 1972, pp 1339-1341

Abstract: The effect is studied of light (of excess carriers) on the magnitude  $\Delta T_p$ , the dielectric constant ( $\epsilon$ ) and the pyrocurrent ( $I_p$ ) in SbSJ crystals. In addition, the temperature of cleavage [rasaloyeniye] is compared with the temperature of the maximum of curves  $\epsilon(T)$  and  $I_p(T)$ . The magnitude  $\epsilon$  was determined with respect to the capacitance of the crystal and was measured by a Ye8-2 bridge (frequency 1 kHz);  $I_p$  was recorded with a U1-2 electrometer with a uniform heating of the crystal at the rate of 1-1.2 deg./min. The authors thank V.A. Lyakhovitskaya for furnishing the SbSJ crystals. 2 fig. 10 ref. Received by editors, 22 December 1971.

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USSR

UDC 681.325.54.045

GOLIK, S. M., and CHIGIRIN, Yu. T.

"An Accumulating Decimal Adder"

USSR Author's Certificate, No 272671, Filed 4 Nov 68, Published 16 Nov 70  
(from Referativnyy Zhurnal -- Avtomatika, Telemekhanika, i Vychislitel'naya  
Tekhnika, No 8, 1971, Abstract No 8B290 P)

Translation: The proposed device pertains to the field of computer engineering and is intended for adding numbers in decimal code. There is a well-known accumulating decimal adder which contains a converter for transforming phase representation of code into a number of pulses; a pulse-position memory element with OR elements; and a circuit for generating a carry pulse, which contains a) a flip-flop with separate inputs and b) an AND element. However, in this type of adder, mistakes made during the addition of numbers and during carry operations are eliminated by the spacing in time of the pulse train and of the carry pulse, which decreases the speed of the adder. The device suggested here is distinguished by the fact that its circuit for the generation of a carry pulse contains both a flip-flop with a complementing input and an AND element. The complementing input of the flip-flop is connected with the output of the pulse-position memory element. The output of the

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GOLIK, S. M., and CHIGIRIN, Yu. T., USSR Author's Certificate, No 272671, Filed 4 Nov 68, Published 16 Nov 70 (from Referativnyy Zhurnal -- Avtomatika, Telemekhanika, i Vychislitel'naya Tekhnika, No 8, 1971, Abstract No 8B290 P)

flip-flop is connected to one of the inputs of the AND element, the other input of which is connected to the interrogation pulses bus. This increases the speed of operation of the adder because the carry pulse occurs at the same moment as the interrogation pulse.

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USSR

UDC: 681.325.33

GOLIK, S. M., BOLOTOV, B. V., BABAK, O. V., Institute of Electromechanics, Academy of Sciences of the Ukrainian SSR

"A Digital-Analog Device for Shaping Spiral Scanning Voltages"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 28, 1970, Soviet Patent No 281018, Class 42, filed 20 Feb 69, pp 150-151

Abstract: This Author's Certificate introduces a digital-analog device for shaping spiral scanning voltages. The unit contains a sawtooth oscillator to which two modulators are connected together with a code-to-voltage converter with a data transmitter for the angle of radar beam rotation. As a distinguishing feature of the patent, precision in shaping the output voltage is improved by adding a voltage-to-pulse duration converter, a master periodic oscillator, two keys, and two adjustment devices. The inputs of the voltage-to-pulse duration converter are connected to the outputs of the master periodic oscillator and the code-to-voltage converter, while the outputs of the voltage-to-pulse duration converter are connected to the modulator inputs through the keys and adjustment devices.

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USSR

UDC 537.312.62:621.318.3

LAZAREV, B. G., LAZAREVA, L. S., GOLIK, V. R., GORIDOV, S. I.,  
Physicotechnical Institute, Ukrainian Academy of Sciences

"Experiences in the Development and Application of Laboratory  
Superconductive Solenoids With Fields of up to 119 kOe"

Moscow, Izvestiya Akademii Nauk SSSR -- Seriya Fizicheskaya, No 11,  
1972, pp 2475-2478

Abstract: An account is given of the work in the laboratory of the Physics Institute, USSR Academy of Sciences, on superconductive water-cooled solenoids capable of generating magnetic fields of as much as 175 kOe in the limit, and in the range of 100-120 kOe for average operation. There are many such laboratory solenoids operating throughout the country. Some of the results of the production work on these solenoids and of the experiences of the personnel involved are presented. It is noted that conductors of 25% Nb, 25% Zr, and Ti have been replaced by 60% Nb and Ti alloy, the critical magnetic field for which is 118 and 145 kOe at 4.2 and 2° K respectively and is 165 kOe when the temperature is extrapolated to 0° K. Thirty-five such solenoids generating fields of up to 90 kOe are now in use in scientific establishments in Moscow,  
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USSR

LAZAREV, B. G., et al, Izvestiya Akademii Nauk SSSR -- Seriya Fizicheskaya, No 11, 1972, pp 2475-2478

Leningrad, Kiev, Donetsk, Sverdlovsk, Riga, Vil'nyus, Sukhumi, Makhachkala, and Kharkov. Technical data for some of the solenoids in operation is given in two tables. It is noted that this paper was presented before the All-Union Conference on Magnetism, held in 1971.

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1/2 016 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--A 115-KOE, 157-KOE WITH DYSPROSIUM CONCENTRATOR, SUPERCONDUCTING  
SOLENOID MADE FROM DUCTILE ALLOYS -U-  
AUTHOR-(04)-LAZAREV, B.G., LAZAREVA, L.S., GOLIK, V.R., GORIDOV, S.I.  
COUNTRY OF INFO--USSR  
SOURCE--FIZIKA METALLOV I METALLOVEDENIE, APR. 1970, 29, (4), 874-876  
DATE PUBLISHED----APR70  
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., MATERIALS  
TOPIC TAGS--SUPERCONDUCTOR, SOLENOID, BINARY ALLOY, TERNARY ALLOY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3003/0674 STEP NO--UR/0126/70/029/004/0874/0876  
CIRC ACCESSION NO--AP0129839  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0129839

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CREATION OF SUPERCONDUCTING SOLENOIDS FROM DUCTILE BINARY AND TERNARY ALLOYS (NB-TI, NB-ZR-TI, ETC.) IS DESCRIBED. BY CAREFUL ATTENTION TO THE CONDITIONS OF MANUFACTURE AS WELL AS AN OPTIMUM CHOICE OF ALLOY COMPOSITION AND PROCESSING, A SOLENOID WITH A MAX. FIELD OF 115 KOE IN A SPACE OF 12 MM IN DIA. WAS ACHIEVED. BY INCORPORATING A SIMPLE DY FIELD CONCENTRATOR IN THE FORM OF A PAIR OF CYLINDERS WITH A 1-MM GAP BETWEEN THEIR ENDS, THE FIELD WAS INCREASED TO 157 KOE.

UNCLASSIFIED

Veterinary Medicine

USSR

GOLIKOV, A. N., Moscow Veterinary Academy

"Modeling Physiological Processes"

Moscow, Veterinariya, No 11, 1972, pp 94-96

Abstract: Modeling should be used more extensively in veterinary schools. A milking machine is used as an example. The machine is controlled by bioelectrical signals reaching the udder via the efferent nerves and automatically switches off when all the milk has been extracted. Another device here described is useful for teaching and research rather than for practical purposes. It is a series of remote-control models of the blood circulation, urination, milk release, and motor reflexes in cows. For instance, the "circulation" display shows the pulmonary and systemic systems, the lymphatics, and heart. The sounds of the functioning heart are simulated by a transistorized device and low-frequency amplifiers. Students can hear the systolic and diastolic sounds and see the direction in which the blood is moving. The heart beat can be altered to show the effect of physical stress or disease.

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Ecology

USSR

UDC 577.4

GOLIKOV, A. N., Zoological Institute, Academy of Sciences USSR, Leningrad

"Method of Determining Productive Characteristics of Populations According to Size and Quantity"

Moscow, Doklady Akademii Nauk SSSR, Vol 193, No 3, pp 730-733

Abstract: The growth curve of any population may be easily established by plotting population density on the ordinate and growth characteristics such as size, weight, etc. on the abscissa. In ecological system, the characteristics of the weight growth and the calculated shifts in population number as each particular species grows serve as data for determining the growth production of the population. Under conditions of a steady population, the latter is expressed by the weight gain of all species of the population for the year prior to the time of analysis of its initial state and can be described by the formula:

$$P_g = 1/\Delta t [N_0(w_1 - w_0) + N_1(w_2 - w_1) + \dots + N_{i-1}(w_i - w_{i-1})],$$

where  $P_g$  is the growing population,  $N$  is the number of species of a given age,  $w_i - w_{i-1}$  is the weight gain of species of a given size during the year ( $\Delta w$ ), and

$\Delta t$  is the yearly time interval. The equation yields an approximation of the production of each category and, on summation, of the population for the year up to 1/2

USSR

GOLIKOV, A. N., Doklady Akademii Nauk SSSR, Vol 193, No 3, pp 730-733

the given season. It does not yield the annual average, for which the state and structure of the population must be expressed for each season. More accurate results are obtained by evaluation of the growth of the biomass over a year, without consideration of individual groups. This procedure yields the so-called "supporting production," based on the biomass of the young and the species. As in the first case, the mean annual supporting production is determined as a sum of the results of the production process throughout the year. The turnover rate of organic matter (coefficient  $P/B$ ) for supporting production varies inversely with the age of the species predominating in the population. In connection with the proposed production equations two biomasses were studied, *Ephera turrita* (short-lived, 2-3 years), and *Littorina squalida* (long-lived, 5-6 and sometimes even 8 years). The ratio between growth and supporting production indicates the direction of development of a population toward either a climax or degeneration.

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Acc. Nr: **AP0034481**

G

Ref. Code: UR 0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 2, pp 171-173

DISTRIBUTION OF ANTIBIOTICS IN ORGANS AND TISSUES OF PREGNANT  
GUINEA PIGS, IN THE NORMAL AND WITH VIBRIO PATHOLOGY

A. V. Golikov

Tselinograd Veterinary Research Station

Distribution of penicillin, streptomycin and oxytetracycline in organs and tissues of 168 pregnant guinea pigs, healthy and with vibriosis was studied. It was found that penicillin, streptomycin and oxytetracycline used in a dose of 25000 Units per kg body weight were present at certain levels in the organs and tissues of the mother, while in the liver and amniotic fluid of the fetus only traces of the antibiotics were recorded. On use of bicillin-3 in a dose of 125000 Units per kg body weight penicillin was found in the fetus liver in a concentration up to 0.5 Units/gm. When severe inflammatory processes (necrosis, exfoliation) due to Vibrios were registered in the placenta, penicillin levels in the fetus liver were up to 4.4 Units/gm.

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REEL/FRAME  
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USSR

UDC 620.17:669.14.0.18.298

TAMARINA, I. A., OVSYANNIKOV, B. M., and GOLIKOV, I. N.

"Mechanical Properties of Structural Steel After Refining Remeltings"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 1, Jan 74,  
pp 14-16

Abstract: The effect of electroslog (ESR) and vacuum-arc remelting (VAR) was studied on resistance to deformation, ductility, and impact strength of structural chromium and Cr-Ni-Mo steels (40KhNM, 20 KhNM, 15 KhNM, 50 Kh, 40 Kh, and 20 Kh) after quenching and low and high tempering. ESR steels are characterized by better ductility properties than VAR steel, which is attributed to the redistribution of stresses to a higher degree in ESR steels. In the low-tempered condition, VAR steels have a higher impact strength and resistance to crack development, while under condition of ductile and ductile-brittle failure, ESR steels possess higher strength and energy properties. Increasing carbon content in the steels lowered strength while additions of nickel and molybdenum improved strength. Refining remeltings of both ESR and VAR steels significantly increases their energy capacity in the high-tempered state in the pre-failure stage, i.e., the stage of crack development  
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USSR

TAMARINA, I. A., et al., *Metallovedeniye i Termicheskaya Obrabotka Metallov*,  
No 1, Jan 74, pp 14-16

and growth up to a critical dimension in the presence of stress concentrations and a volume-stress state. Two tables, two bibliographic references.

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USSR

UBC 809.1(47-01:40.1)

G  
GOLIKOV, I. M., Central Scientific Research Institute of Ferrous Metallurgy, Lenin  
I. P. Bardin, and TOI, Yanosh, Scientific Research Institute of Ferrous Metallurgy,  
Hungarian Peoples Republic

"Soviet-Hungarian Cooperation in Ferrous Metallurgy"

Moscow, Sankt', No 10, Oct 70, pp 962-964

Abstract: The Soviet-Hungarian cooperation in ferrous metallurgy encompasses a number of important problems such as: improvement of the techniques of producing transformer, dynamo, and high-grade steel; extension of the service life of open-hearth roofs; beneficiation of low-grade manganese ores; and dewatering of sludge and decontamination of discharge waters of ore beneficiation plants.

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USSR

UDC 621.374.5

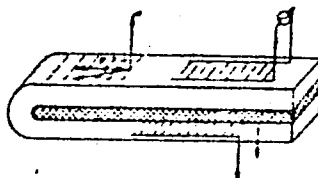
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KARINSKIY, S. S., KOMAROV, V. G., MONDIKOV, V. D., GOLIKOV, M. I., ROMANOV, L. N., KOMAROVA, I. S., KRISTININA, L. I.

"An Integrated Ultrasonic Single-Crystal Delay Line"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 15, May 71, Author's Certificate No 302808, Division H, filed 22 Sep 69, published 28 Apr 71

Translation: This Author's Certificate introduces an integrated ultrasonic single-crystal delay line for surface waves. The device contains a piezo-electric single-crystal acoustic line with a slot on one end which is filled with an absorber. The device also contains lattice-type two-phase receiving and transmitting converters. As a distinguishing feature of the patent, the delay time is increased by locating the converters on the upper and lower surfaces of the acoustic line, and by rounding the other end of the line with a radius of at least ten ultrasonic resonance wavelengths.



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1/2 019 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--SEASONAL RHYTHM OF THE HYPOPHYSEAL ADRENAL SYSTEM -U-

AUTHOR--GOLIKOV, P.P.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. BIOL. 1970, 31(1), 106-10

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ADRENAL GLAND, CORTICOSTEROID, SEASONAL VARIATION, ASCORBIC  
ACID, CHOLESTEROL, THYMUS GLAND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1998/0104

STEP NO--UR/0321/70/031/001/0106/0110

CIRC ACCESSION NO--AP0120804

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2/2 019

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PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120804

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONTENT OF CORTICOSTEROIDS IN BLOOD FLOWING FROM ADRENAL GLANDS WAS DETD. IN FEMALE RATS IN THE MIDDLE OF AUTUMN, WINTER, SPRING, AND SUMMER, WITH SIMULTANEOUS DETN. OF THE WT. OF ADRENAL GLANDS, THEIR CONTENT OF ASCORBIC ACID AND CHOLESTEROL; AND NO. OF LEUKOCYTES IN PERIPHERAL BLOOD. THE LOWEST WT. OF ADRENAL GLANDS WAS IN WINTER (15 MG PERCENT), THE HIGHEST IN SUMMER (20.8 MG PERCENT). THE HIGHEST CONTENT OF ASCORBIC ACID WAS IN SPRING (260 MG PERCENT), THE LOWEST IN SUMMER (150 MG PERCENT). CHOLESTEROL CONCN. WAS ALSO HIGHEST IN SPRING (2.5 G PERCENT) AND LOWEST IN SUMMER (1.5 G PERCENT). MAX. NO. OF LEUKOCYTES WAS OBSD. IN AUTUMN (8500), MIN. IN WINTER (7200). WT. OF THYMUS WAS INCREASED IN SPRING (230 MG PERCENT), DECREASED IN WINTER (130 MG PERCENT). MAX. AMTS. OF CORTICOSTEROID WERE SECRETED IN SPRING AND SUMMER (710 AND 780 MUG PERCENT, RESP.), MIN. IN AUTUMN (420 MUG PERCENT). FACILITY: INST. BIOL. ACTIVE SUBST., VLADIVOSTOK, USSR.

UNCLASSIFIED

GOLIKOV, S.N.

JKS 58093  
30 Jan 73

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Experiments were performed upon 200 white mice of both sexes, 60 white rats and 52 cats.



This study involved an attempt to explain the role of the oxime group in the therapeutic and prophylactic effect of dipyroxime. For this purpose, we studied, in parallel, the pharmacological properties of the oxime-free analogs (aromatic 1,3-bis (pyridino) propane) synthesized at our suggestion by candidate of chemical sciences I.N. Somin (see formula II). The physical properties of the oxime-free analogs: a white crystalline powder, odorless, easily soluble in water, hardly soluble in ether, benzene, boiling point 242-244 degrees.

No showed previously (S.G. Golikov and coauthors, 1966) that dipyroxime (TM-2) (see formula I) sufficiently quickly restores the cholinesterase activity inhibited by organophosphorus insecticides (FOI) and antagonizes well with FOI in the effect upon isolated organs and systems.

Experiments on mice, rats and cats showed that dipyroxime is a re-activator of cholinesterase which has, in the structure, 2 nucleophilic oxime groups, has a pronounced anticholinergic and reactivating cholinesterase effect after poisoning animals by anticholinesterase organophosphorus compounds. The synthesized oxime free analog does not possess those properties. The revealed certain cholinergic activity of the oxime-free analog of dipyroxime is much lower than the activity of dipyroxime. The investigations indicated the decisive role of the oxime group in the anticholinergic effect of dipyroxime (Pharmacology and Toxicology, No. 5, p 589, 1972).

Article by S.N. Golikov, V.I. Shchekoldina and I.G. Simonova; Moscow, Farmakologiya i Toksikologiya, Russian, No. 5, 1972, submitted 1 February 1972, pp 570-592.

THE PHARMACOLOGY OF DIPYROXIME

UDC 615.246.9.015

USSR

615.217.32.813.1.015.4:612.833.81

GOLIKOV, S. N., SELIVANOVA, A. T., LEVSHUNOVA, M. A. and BARANTSEVICH, R. P.,  
Leningrad

"The Mechanism of Armine Action on Conditioned Reflexes"

Moscow, Farmakologiya i Toksikologiya, Vol 35, No 2, Mar/Apr 72, pp 131-134

Abstract: Armine given to cats intramuscularly in doses of 3-5 mcg/kg shortens latency periods, speeds up reactions to stimuli, and increases general motor activity, while larger doses (10 mcg/kg) inhibit conditioned reflexes. Armine injected into the right motor cortex through an implanted tubule in doses of 5 mcg/kg slows down conditioned reflexes to light and sound stimuli and causes clonic twitches on the contralateral side. Larger doses (20 and 50 mcg/kg) completely inhibit conditioned reflexes, destroy coordinated motor activity, and cause epileptic seizures recurring for up to 6 months. Conditioned reflexes begin to reappear in a month, but complete recovery requires up to a year. Histological examinations of cortical slides obtained during the acute phase revealed neurons with ischemic degeneration and neurons with bleached cytoplasm and nuclei in the third, fourth, and fifth cortical layers at and around the site of injection.

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UDC 577.1:615.7/9

GOLIKOV, S. N.

Rukovodstvo po toksikologii otravlyayushchikh veshchestv (Handbook on Toxicology of Poisonous Substances), Moscow, Izdatel'stvo Meditsina, 1972, 472 pp (from Referativnyy Zhurnal -- Biologicheskaya Khimiya, No 22, 1972, Abstract No 22F2571)

Translation: The book contains data on toxicology of existing poisonous substances (sarin, soman, V-agents), psychotomimetic substances, poisons of animal origin, and some corrosive substances, as well as their biochemistry, the mechanism of action, pathogenesis, clinical application, and principles of the antidote treatment in the case of poisoning with these substances.

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USSR

GOLIKOV, S. N., Institute of Toxicology, Ministry of Health  
USSR, Leningrad

"The Search for Cholinolytic Drugs Selectively Acting on the  
Central Nervous System"

Moscow, Aktual'nyye Problemy Farmakologii in Farmatsii, pp 33-37

Abstract: A brief review is presented of work done on the development of cholinolytic drugs such as amizil, tiphen, aprophen, aprotidine, and others, which readily penetrate the hematic barriers and affect the peripheral and central nervous systems. Preparations with greater selectivity, affecting primarily the central nervous structures, are necessary. S. G. Kuznetsov and associates synthesized benzilate esters and N-methyl-N-tertiary-butyl-aminoethanol or its N-ethyl derivatives, compounds close to amizil, and differing from the latter only by the structure of the aminoalcohol part: either the N-ethyl or N-methyl-tertiary butylaminoethanol was added to the molecule instead of diethyl aminoethanol. Laboratory tests established that these new com-

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GOLIKOV, S. N., Aktual'nyye Problemy Farmakologii in Farmatsii,  
pp 33-37

pounds have a low index of peripheral M-cholinolytic activity and are superior to amizil in their central M-cholinolytic activity, as indicated by the intensity of influence of these preparations on the EEG and their antagonistic relationship with arecoline in experiments on mice.

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1/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--DIFFUSION OF COPPER IN IRON AND ITS ALLOYS -U-  
AUTHOR--(02)--LAZAREV, V.A., GCLIKOV, V.M. **6**  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. METAL METALLOVED. 1970, 29(3), 598-602  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--MATERIALS  
  
TOPIC TAGS--METAL DIFFUSION, IRON ALLOY, COPPER CONTAINING ALLOY,  
METALLURGIC RESEARCH FACILITY, SURFACE ACTIVE AGENT, BORON CONTAINING  
ALLOY, MOLYBDENUM CONTAINING, GRAIN BOUNDARY  
  
CONTROL MARKING--NO RESTRICTIONS  
  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3001/0333 STEP NO--UR/0126/70/029/003/0598/0602  
  
CIRC ACCESSION NO--AP0126089  
UNCLASSIFIED

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PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126089

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TEMP. DEPENDENCE OF THE COEFF. OF VGL. DIFFUSION AND PARAMETERS BOUNDARY DIFFUSION OF CU WAS STUDIED FOR THE FOLLOWING 5 ALLOYS: PURE IRON (C 0.004, SI 0.02, MN 0.04, S 0.001, P 0.001PERCENT) FE PLUS 0.2PERCENT CU, FE PLUS 1.22PERCENT CU, FE PLUS 0.003PERCENT B, FE PLUS 1.0PERCENT MO AT 707-870DEGREES. SMALL ADDNS. OF CU, B, AND MO LOWERED THE DIFFUSION MOBILITY OF CU ALONG THE GRAIN BOUNDARIES. THE CU INCREASED THE ACTIVATION ENERGY OF BOUNDARY DIFFUSION. BY INTRODUCING INTO FE, SURFACE ACTIVE ELEMENTS SUCH AS B AND MO, NOT ONLY THE DIFFUSIONAL MOBILITY OF CU BUT ALSO THE CONC. OF CU IN THE NEAR BOUNDARY ZONE DECREASE, WHEREBY THE PLASTICITY OF THE CU CONTG. IRON CAN BE IMPROVED. FACILITY: INST. METALLOVED. FIZ. METAL., MSCCN, USSR.

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